

The Claims

Claims 1 – 215 (Canceled)

216. (Previously presented) An engine comprising a combustion chamber, wherein a mixture of oxygen, as O₂, and hydrogen, as H₂, is combusted, wherein
at least a portion of said oxygen is obtained by the separation of air, wherein
the separation of air is selected from the group consisting of:
(a) cryogenic separation,
(b) membrane separation,
(c) pressure swing adsorption, and
any combination thereof, wherein
at least a portion of the energy of combustion creates at least one of:
mechanical rotating energy, and
steam in the combustion chamber, wherein
at least one of the mechanical rotating energy and the steam powers at least a portion
of said air separation, and wherein
the temperature of combustion is at least partially controlled with the addition of
water to said combustion chamber in a way that maintains combustion or combustion exhaust
temperature.

217. (Canceled)

218. (Previously presented) The engine of claim 216, wherein said rotating mechanical
energy turns a generator to create electrical energy.

219. (Previously Presented) The engine of claim 216, wherein the steam produced by
combustion turns a steam turbine, and wherein
said steam turbine turns a generator to create electrical energy.

220. (Original) The engine of claim 216, wherein heat is created.

221. (Canceled)

222. (Previously presented) The engine of claim 218 or 219, wherein at least a portion of said electrical energy is used in the electrolysis of water to hydrogen and oxygen, and wherein at least a portion of at least one of said hydrogen and oxygen is used in said mixture.

223. (Previously presented) The engine of claim 216, further comprising nitrogen or argon in said mixture.

224. (Previously presented) The engine of claim 216, wherein said oxygen further comprises air.

225. (Original) The engine of claim 216, wherein at least a portion of the steam produced by combustion is converted to hydrogen by the corrosion of at least one metal.

226. (Original) The engine of claim 225, wherein the conversion of said steam into said hydrogen is increased by an electrical current in said metal(s).

227. (Previously presented) The engine of claim 225 or 226, wherein said hydrogen is at least partially used in said mixture.

228. (Previously presented) The engine of claim 216, wherein a generator turns due to the movement of air or water, and wherein
said generator creates electrical energy, and wherein
said electrical energy is at least partially utilized in the electrolysis of water to hydrogen and oxygen, and wherein
at least a portion of at least one of said hydrogen and oxygen is used in said mixture.

229. (Previously presented) The engine of claim 216, wherein a photovoltaic cell creates electrical energy, wherein
said electrical energy is at least partially used in the electrolysis of water to hydrogen and oxygen, and wherein
at least a portion of at least one of said hydrogen and oxygen is used in said mixture.

230. (Canceled)

231. (Previously presented) The engine of claim 216, wherein at least a portion of the nitrogen separated from air in said cryogenic air separation unit is used to cool any portion of at least one selected from a list consisting of: said cryogenic air separation unit, the storage of oxygen, the storage of hydrogen, electrolysis, coolant for said engine, said engine and any combination thereof.

232. (Previously presented) The engine of claim 231, wherein said nitrogen separated from air in said cryogenic air separation unit is at least partially used to cool air or water.

223 – 234. (Canceled)

235. (Previously presented) The engine of claim 216, wherein said oxygen separated from air is at least one of enriched oxygen, pure oxygen and very pure oxygen.

236. (Canceled)

237. (Previously Presented) The engine of claim 216, wherein at least one selected from a list consisting of a: corrosion inhibitor, chelant, dispersant and any combination therein is added to at least a portion of the water in said engine.

238. (Original) The engine of claim 216, wherein said engine performs at least one of: internal, turbine and heating combustion.

239. (Previously Presented) The engine of claim 216, wherein at least one of oxygen and hydrogen is stored in at least one of a cooled gas state and a liquid state by liquefaction.

240. (Previously Presented) The engine of claim 239, wherein compressor(s) for at least one of cooling and liquefaction is powered by at least one of said engine and a fuel cell.

241. (Previously Presented) The engine of claim 240, wherein said fuel cell is powered by hydrogen and at least one of oxygen and air.

242. (Previously Presented) The engine of claim 216, wherein at least one of said hydrogen and oxygen is stored in a mixture with frozen water crystals to form a gel.

243. (Previously presented) The engine of claim 216, wherein at least one selected from a list consisting of: hydrogen, oxygen and water is preheated prior to combustion with the energy from at least one selected from a list consisting of: ambient temperature, said engine, said engine exhaust, an electrical radiant heat source and any combination therein.

244. (Previously presented) The engine of claim 216, wherein said mechanical rotating energy enters a transmission, wherein

said transmission engage in a manner that is inversely proportional to at least one of the torque and work output of said engine, and wherein

said transmission output mechanical rotating energy turns a generator to create electrical energy.

245. (Original) The engine of claim 244, wherein said transmission engage a flywheel capable of storing rotational kinetic energy, wherein

said flywheel turns said generator.

246. (Original) The engine of claim 244, wherein at least a portion of said electrical energy is used in the electrolysis of water to hydrogen and oxygen.

247. (Previously presented) The engine of claim 246, wherein at least a portion of at least one of said hydrogen and oxygen is used in said mixture.

248. (Previously Presented) The engine of claim 216 or 219, wherein a pressure control device is in said engine exhaust.

249. (Previously Presented) The engine of claim 216, wherein at least one of said engine combustion heat energy and said engine exhaust energy is used to heat at least one of a gas and a liquid.

250. (Previously Presented) The engine of claim 249, wherein at least one of the gas is air and the liquid is water.

251. (Original) The engine of claim 250, wherein said exhaust discharge directly into said air or water.

252. (Previously presented) The engine of claim 216, wherein at least a portion of said engine is insulated.

253. (Previously presented) The engine of claim 216, wherein hydrogen is separated from at least one selected from a list consisting of: water, air, nitrogen, oxygen and any combination thereof within said air separation unit.

254 – 257. (Canceled)

258. (Previously presented) The engine of claim 216, wherein the temperature of said engine exhaust is at least partially cooled with the addition of water to said engine exhaust.

259. (Previously presented) The engine of claim 258, comprising jet propulsion.

260. (Previously presented) The engine of claim 216 or 258, comprising rocket propulsion.

Claims 261 - 341 (Canceled)

342. (Previously presented) The engine of claim 216, wherein said engine comprises a turbine.

Claims 343 - 349 (Canceled)

350. (Previously presented) The engine of claim 216, comprising jet propulsion wherein air is stoichiometrically increased in the jet intake for hydrogen thermodynamics and/or to operate with excess air for cooling.